

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Patent No. : 7,435,304 Application No. 10/519,227
Inventors : Choi et al. Confirmation No. 7325
Issued : October 14, 2008
Title : Coating Composition, And Method For Manufacturing
High Silicon Electrical Steel Sheet Using Thereof
Examiner : John P. Sheehan
Customer No. : 28289

REQUEST FOR CERTIFICATE OF CORRECTION OF PATENT

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

ATTENTION: Decision and Certificate of Correction Branch
Patent Issue Division

Sir:

In accordance with 35 U.S.C. § 254, we attach hereto Form PTO/SB/44 and a copy of proof of PTO's error and request that a Certificate of Correction be issued in the above-identified patent. The following error appears in the patent as printed:

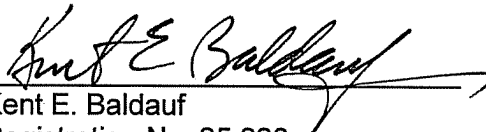
Column 4, Line 5, "non-homogenous" should read – non-homogeneous –
(See the Amendment After Allowance Under 37 C.F.R. §1.312(a) dated June 30, 2008, page 3, referring to the paragraph beginning at page 9, line 4. See line 4.)

Column 23, Line 2, Claim 20, "f the steel sheet" should read – of the steel sheet –
(See the Preliminary Amendment dated December 22, 2004, page 12, Claim 20, line 2.)

The second error is an obvious typographical error made by Applicants. The \$100.00 fee for correction of Applicants' mistake is being paid by credit card, the information for which is submitted concurrently herewith. The remaining error is a printing error.

Respectfully submitted,
THE WEBB LAW FIRM

By


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I certify that this correspondence is being electronically submitted to the United States Patent and Trademark Office on January 13, 2009.

Mary Jo Sinicrope

(Name of person submitting paper)

1/13/2008

Date

Signature

**UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION**

Page 1 of 1

PATENT NO. : 7,435,304
APPLICATION NO. : 10/519,227
ISSUE DATE : October 14, 2008
INVENTORS : Choi et al.

It is certified that an error appears or errors appear in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

Column 4, Line 5, "non-homogenous" should read – non-homogeneous –

Column 23, Line 2, Claim 20, "f the steel sheet" should read – of the steel sheet –

MAILING ADDRESS OF SENDER: The Webb Law Firm
700 Koppers Building
436 Seventh Avenue
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This collection of information is required by 37 CFR 1.322, 1.323, and 1.324. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1.0 hour to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-2450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Attention Certificate of Corrections Branch, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select Option 2.

Notice of Allowance dated June 23, 2008

Appl. No. 10/519,227

Amdt. dated June 30, 2008

Attorney Docket No. 1455-045725

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Appl. No. : 10/519,227 Confirmation No. 7325
Applicants : Kyu-Seung CHOI et al.
Filed : December 22, 2004
Title : Coating Composition, and Method for Manufacturing High
Silicon Electrical Steel Sheet Using Thereof
Art Unit : 1793
Examiner : John P. Sheehan
Customer No. : 28289

MAIL STOP ISSUE FEE

Commissioner for Patents

P.O. Box 1450

Alexandria, VA 22313-1450

AMENDMENT AFTER ALLOWANCE UNDER 37 C.F.R. §1.312(a)

Sir:

Please amend the above-identified application as follows.

Amendments to the Specification begin on page 2 of this paper.

Remarks begin on page 10 of this paper.

I hereby certify that this correspondence is being electronically submitted to the United States Patent and Trademark Office on the date set forth below.

Diane Paul

(Name of Person Mailing Paper)

Diane Paul
Signature

06/30/2008

Date

Notice of Allowance dated June 23, 2008

Appl. No. 10/519,227

Amdt. dated June 30, 2008

Attorney Docket No. 1455-045725

outer portion. However, the aforementioned ~~prior arts~~ prior art has not yet been commercialized.

Please replace the paragraph beginning at page 5, line 11, with the following rewritten paragraph:

Among the currently circulated electrical steel products, only non-oriented electrical steel sheets containing 6.5% Si are produced and sold as the high silicon steel product. Owing to an irregular arrangement of grain, the non-oriented electrical steel sheets containing 6.5% Si content is used in the rotator with a small magnetic deviation according to magnetizing ~~directions~~ direction orientations. However, high silicon grain-oriented electrical steel sheet products, which demonstrate excellent characteristics in use for the transformer mainly using only the magnetic property in the rolling direction, have been not yet been commercialized. Accordingly, various ~~tries for producing~~ attempts to produce a grain-oriented electrical steel sheet with superior magnetic properties due to high silicon content have been performed, but it has not been informed yet on the success to produce such products.

Please replace the paragraph beginning at page 9, line 4, with the following rewritten paragraph:

4 When comparing the interdiffusion reaction of Fe atoms and Si atoms, since the diffusion rate of Si is approximately two times greater than that of Fe atoms in a temperature range of 1000 - 1200 °C, a phenomenon occurs, ~~known as the Kirkendall~~ effect corresponding to a ~~non-homogeneous~~ non-homogeneous diffusion state. This non-homogeneous diffusion state causes ~~non-homogeneous~~ non-homogeneous state defects at a reaction interface or creates various compounds such as FeSi₂, FeSi, Fe₅Si₃ or Fe₃Si, which act as a factor in deteriorating magnetic properties. Accordingly, it is in fact impossible to produce high silicon grain-oriented electrical steel sheets having a ~~homogeneous~~ homogeneous composition without surface defects by coating the silicon containing powder on the electrical steel sheet and diffusing Si atoms at a high temperature.

Application No. Not Yet Assigned
Paper Dated: December 22, 2004
In Reply to USPTO Correspondence of N/A
Attorney Docket No. 1455-045725

Customer No. 28289

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application No. : Not Yet Assigned
Applicant : Kyu-Seung CHOI et al.
Filed : Concurrently Herewith
Title : COATING COMPOSITION, AND METHOD FOR
MANUFACTURING HIGH SILICON ELECTRICAL
STEEL SHEET USING THEREOF
International Application : PCT/KR2003/002412
International Filing Date : 11 November 2003
Priority Dates Claimed : 11 November 2002 and 27 November 2002

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Commissioner for Patents
P. O. Box 1450
Alexandria, VA 22313-1450

PRELIMINARY AMENDMENT

Sir:

Prior to initial examination, please amend the above-identified patent application as follows:

Amendments to the Specification begin on page 2 of this paper.

Amendments to the Claims begin on page 9 of this paper.

Amendments to the Abstract is on page 14.

Remarks begin on page 15 of this paper.

coating and drying the coating composition as recited in any of claims 1 to 4 on the surface of the cold rolled steel sheet; and

diffusion annealing the dried electrical steel sheet in a nitrogen gas atmosphere containing 20% or more hydrogen at a temperature range of 1000 - 1200 °C.

14. (Original) The method according to claim 13, wherein the steel sheet to be coated with the coating composition contains 2.9 - 3.3 wt% Si.

15. (Original) The method according to claim 13, wherein the steel sheet coated with the coating composition is dried at a temperature of 200 - 700 °C.

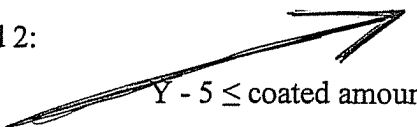
16. (Original) The method according to claim 13, wherein the steel sheet coated with the coating composition is homogenized at a temperature of 1050 - 1200 °C.

17. (Original) The method according to claim 13, wherein prior to coating the coating composition, the cold rolled steel sheet is intermediate-annealed such that a total oxygen content in a surface oxide layer of the steel sheet is 210 - 420 ppm.

18. (Original) The method according to claim 17, wherein the cold rolled steel sheet is intermediate-annealed at a temperature range of 950 - 1100 °C.

19. (Original) The method according to claim 17, wherein the cold rolled steel sheet is intermediate-annealed in a nitrogen atmosphere containing 50 % or more hydrogen and a moisture atmosphere with a dew point (PH₂O/PH₂): 0.06 - 0.30.

20. (Original) The method according to claim 13, wherein the coating composition is coated on the surface of the steel sheet so as to satisfy the following formulas 1 and 2:



$Y - 5 \leq \text{coated amount} \leq Y + 5$ ----- formula 1, and

$Y(\text{g/m}^2) = 7650t(x_1 - x_2)/(A - 14.4)$ --- formula 2,